

Remarks

Applicants have amended claims 12 – 19 and 21 - 26 and have provided discussion below for distinguishing the present claims, as amended, from the art cited against them. Claims 1 – 8 and 20 have been cancelled without prejudice.

35 USC §102(b)

The Examiner rejected claims 26 as being anticipated under §102(b) by Thundat '717 (U.S. 6,289,717). Thundat '717 is directed at providing a method for determining characteristics of a sample using a force transducing sensor with a surface coating. Claim 26 has been amended to specify that the method described therein involves positioning the force transducing sensor within a chamber adapted to receive the motile specimen under analysis, an element which is not disclosed in Thundat '717.

Claim 26 has been further amended to specify that the method is determining characteristics of a motile specimen. In Thundat '717, the methods disclosed detect either the presence or absence of a component in a sample (and can isolate such a component) or the measurements are of stress on the force transducing sensor caused by chemical reaction between the coating and the sample. The method disclosed in Claim 26 does not depend upon correlating the measurements of a chemical reaction between the specimen and the surface coating to measure the characteristics of the specimen, but instead directly measures a physical interaction between motile specimens and the force transducing sensor to determine the characteristics. Claim 26 has been amended to specify that motile specimens are interacting with the force transducing sensor to clarify that the force transducing sensor is using the movement of the specimens to measure the characteristics of the specimen, rather than the interaction of the specimens with the surface coating, as in Thundat '717. Claim 26 is in condition for allowance over Thundat '717.

Claim 26 is further amended to provide that the detection is provided by directing a beam through a transparent substrate and receiving a reflected beam through a transparent substrate, where the transparent substrate is a wall of the chamber. The cited reference lacks a teaching of such a transparent substrate.

Claim 26 is therefore distinguished over the cited art.

35 USC §103(a)

The Examiner also rejected Claims 1 – 8 and 12 - 25 as obvious under §103(a) over Thundat '717 in view of Thundat '686 (U.S. 6,016,686). The Thundat '717 reference discloses a motion sensor

comprising at least one force transducing sensor provided in the form of a microcantilever positioned to interact with a specimen in a fluid sample, including biological samples. However, Thundat '717 does not teach the use of the force transducing sensor to detect the movement of motile specimens, but rather the movement caused by the force of the specimen reacting with a surface coating on the cantilever or by the force of the specimen binding to the cantilever. This embodiment of the invention depends on the movement of a motile specimen to provide the force detected by the system. The Thundat '686 reference does disclose the use of live biological specimens with the microcantilever sensor, but depends on differences in surface charge to provide the force that is measured by the sensor. Both Thundat references rely on correlating data on things such as changes in hydrogen ion concentration or force from a chemical reaction to determine some information about a sample.

The method disclosed in the claim 21 as amended determines the motile frequency of a specimen by measuring the movement of the specimen itself, not by correlating such a characteristic with the results of a chemical reaction, changes in concentration of a given compound, or changes in surface charge. The Thundat references do not disclose the idea that characteristics could be determined without the aid of such correlations, nor do they disclose the idea that the motile frequency of a specimen could be determined directly. While it might be obvious to combine the teachings of the two Thundat references, the combination of the two does not teach the inventive principles disclosed in the herein. Claim 21 is in condition for allowance over Thundat '717 in view of Thundat '686. Claims 22 – 25 depend on Claim 21 and are also in condition for allowance.

The method disclosed in the claim 12 as amended determines the residence time of a specimen by measuring the movement of the specimen itself, not by correlating such a characteristic with the results of a chemical reaction, changes in concentration of a given compound, or changes in surface charge. The Thundat references do not disclose the idea that such a characteristic could be determined without the aid of such correlations, nor do they disclose the idea that the residence time of a specimen could be determined directly. While it might be obvious to combine the teachings of the two Thundat references, the combination of the two does not teach the inventive principles disclosed in the herein. Claim 12 is in condition for allowance over Thundat '717 in view of Thundat '686. Claims 13 – 19 depend on Claim 12 and are also in condition for allowance.

Claims 12 and 21 further provide the steps of directing a beam through a transparent substrate on which the beam generator is mounted and detecting a reflected beam through the transparent substrate using a detector mounted on the transparent substrate. The cited Thundat references lack a teaching or suggestion of these features and so the rejection is overcome. The claimed invention is also distinguished over other art of record in this application, including, for


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example, the Paritsky reference and the Welland reference, which lack a showing of mounting the beam generator and detector on the transparent substrate. As such, the claimed invention is non-obvious over the cited art, whether considered alone or in combination.

Conclusion

Inasmuch as each of the objections have been overcome by the amendments and discussion above, and all of the Examiner's suggestions and requirements have been satisfied, it is respectfully requested that the present application be reconsidered, the rejections be withdrawn and that a timely Notice of Allowance be issued in this case.

Respectfully submitted,



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